

## Pneumatically operated 2/2 way Diaphragm Valve ELEMENT



Type 2103 tube valve body On/Off can be combined with...



**Type 8691**  
Control Head



**Type 8695**  
Control Head



**Type 8690**  
Pneumatic Control Unit



**Type 8697**  
Pneumatic Control Unit



**Type 8619**  
MultiCELL Transmitter/  
Controller



**Type 8110**  
Level meter

- Light tube valve body
- Hermetical separation of fluids from the operating mechanism
- Optimal design for hygienic environments
- Easy integration of automation units with ELEMENT

The externally piloted diaphragm valve consists of a pneumatically operated piston actuator, a diaphragm and a 2-way tube valve body.

Bürkert's patented hydroforming technology allows the manufacturing of a flow optimized stainless steel valve body with high surface quality. A laser-welded mounting interface ensures robustness and hygienic design.

The ELEMENT design enables the easy integration of automation modules whether they are electrical/optical position feedback, pneumatic control units, an integrated fieldbus interface or even an explosion proof feedback. The fully integrated system has a compact and smooth design, integrated pneumatic lines, IP65/67/NEMA4X protection class and superior chemical resistance.

The diaphragm valve with tube body is perfect for hygienic applications in the food and beverage, pharma, and cosmetic industries. It is designed with zero dead leg and a high cleanability certified by EHEDG.

Technical data	
Port connection size	DN15-50 (1/2" - 2")
Diaphragm size	DN08-40
Port connections Weld ends	ASME BPE / DIN 11866 Series C
Materials Body Diaphragm materials	Stainless steel 316L / 1.4435 / BN2 EPDM (AB), PTFE/EPDM (EA) EPDM (AD), advanced PTFE/EPDM (EU) and FKM (FF) on request
Actuator / Cover	PPS / Stainless steel 1.4561 (316Ti)
Media	Neutral gases and liquids, high-purity, sterile, aggressive or abrasive fluids
Viscosity	Up to viscous
Surface finish Internally electro polished	Ra ≤ 0.38 µm (ASME BPE SF4)
Medium temperature EPDM (AB), PTFE/EPDM (EA) EPDM (AD), advanced PTFE/EPDM (EU) FKM (FF)	-10 to +130 °C (steam sterilisation +140 °C for 60 min) -5 to +143 °C (steam sterilisation +150 °C for 60 min) 0 to +130 °C (not recommended for steam)
Ambient temperature	+5 to +60 °C
Control medium	Neutral gases; air
Max. pilot pressure	max. 10 bar, 7 bar with actuator size 130 mm
Pilot air ports	Push-in connector for external ø 6 mm or 1/4" tube, thread G1/8 (on request)
Installation	As required, preferably with actuator in upright position



# 2103 Tube Valve Body

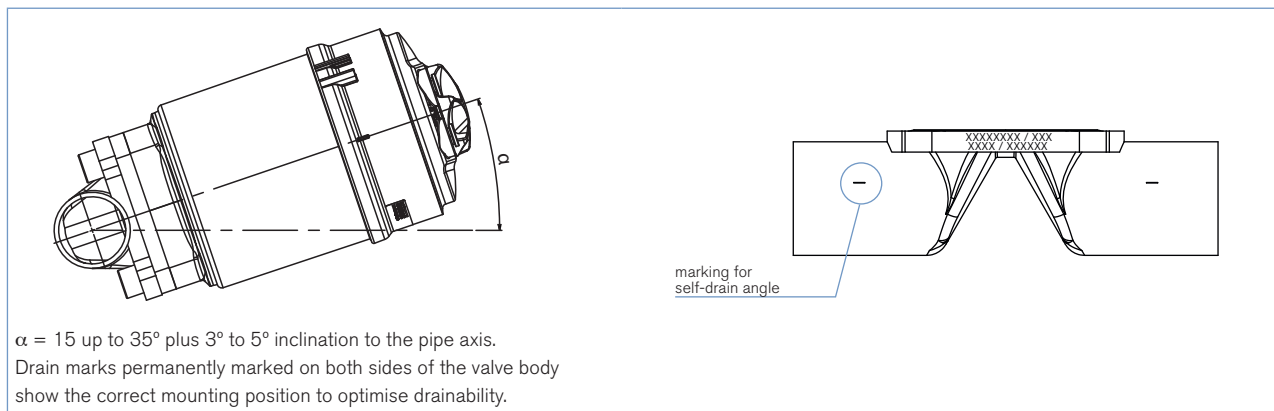
## Technical data, continued

Port size (tube)		Diaphragm size	Actuator size $\varnothing$	Pilot pressure	Operating pressure max. for seal material		Kv values
[mm]	[inch]				EPDM	PTFE/EPDM and advanced PTFE/EPDM	
15	1/2"	8	50	5..10	10	10	2
20	3/4"	15	70	5..10	10	10	6,5
25	1"	20	70	5..10	10	10	12,5
40	1 1/2"	32	90	5..10	7	6,5	30
50	2"	40	90	5..10	5,5	5	40
			130	5..7	10	10	

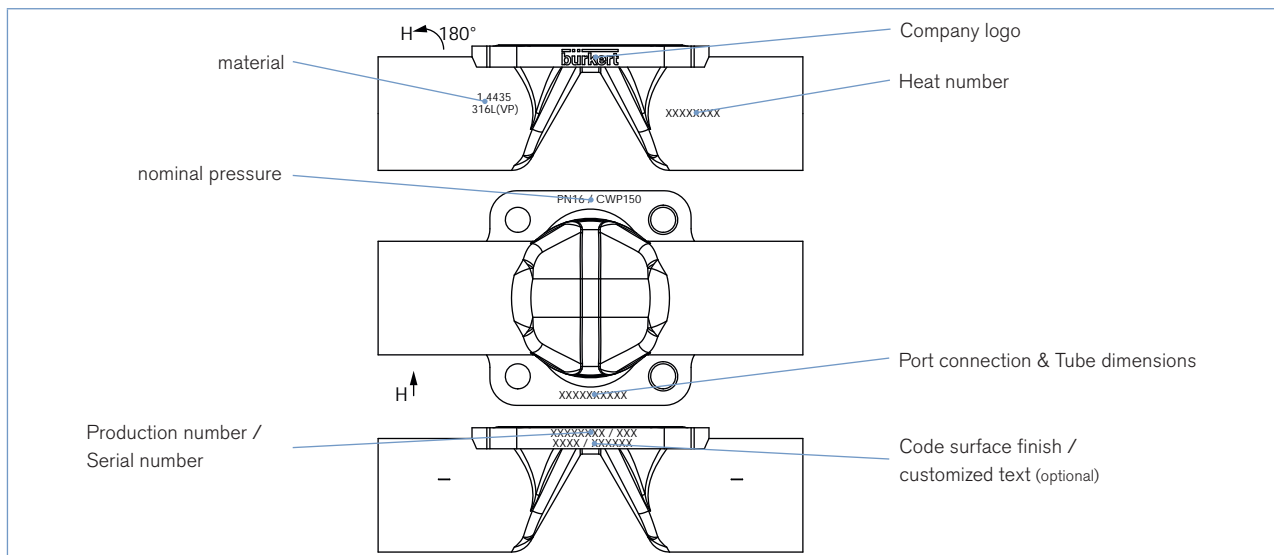
**Flow rate:** Kv value water [m³/h]: Measured at +20°C, 1 bar pressure at valve inlet and free outlet.

**Pressure valves [bar]:** Overpressure to the atmospheric pressure

## Installation for self-draining operation



## Body label



Approvals

Suitability for foodstuffs / sterile applications



- The composition of the EPDM (AB), EPDM (AD), PTFE/EPDM (EA) and advanced PTFE (EU) diaphragms corresponds to the Code of Federal Regulations, published by the FDA (Food and Drug Administration, USA).



- The composition of the EPDM (AB), EPDM (AD), PTFE/EPDM (EA) and advanced PTFE (EU) diaphragms is suitable for the application with food and beverage (acc. to EC-Regulation 1935/2004/EC)



- The composition of the EPDM (AB), EPDM (AD), PTFE/EPDM (EA) und advanced PTFE (EU) diaphragms are approved acc. USP Class VI

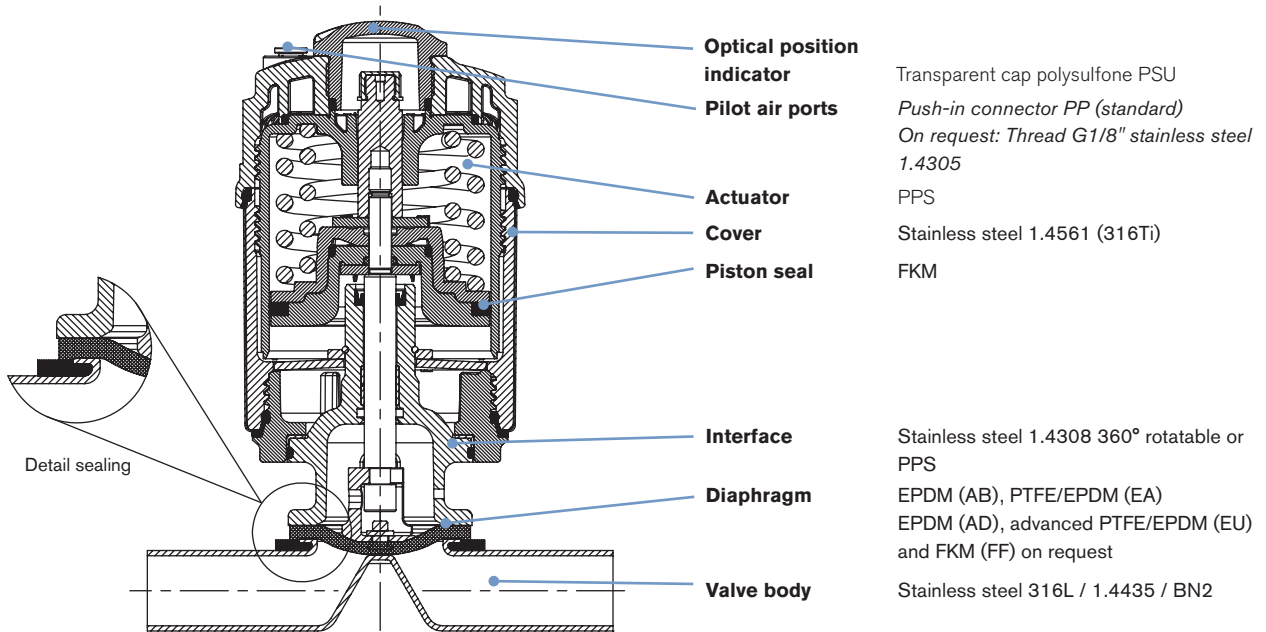
- Approval according to TA-air (Port size DN4-50)

- The diaphragm valve with tube valve body and EPDM or PTFE has been evaluated for compliance with the *Hygienic Equipment Design Criteria* of the EHEDG



- The Diaphragm valve according to 3-A approved on request (3-A Sanitary Standards Symbol Administrative Council)

Materials

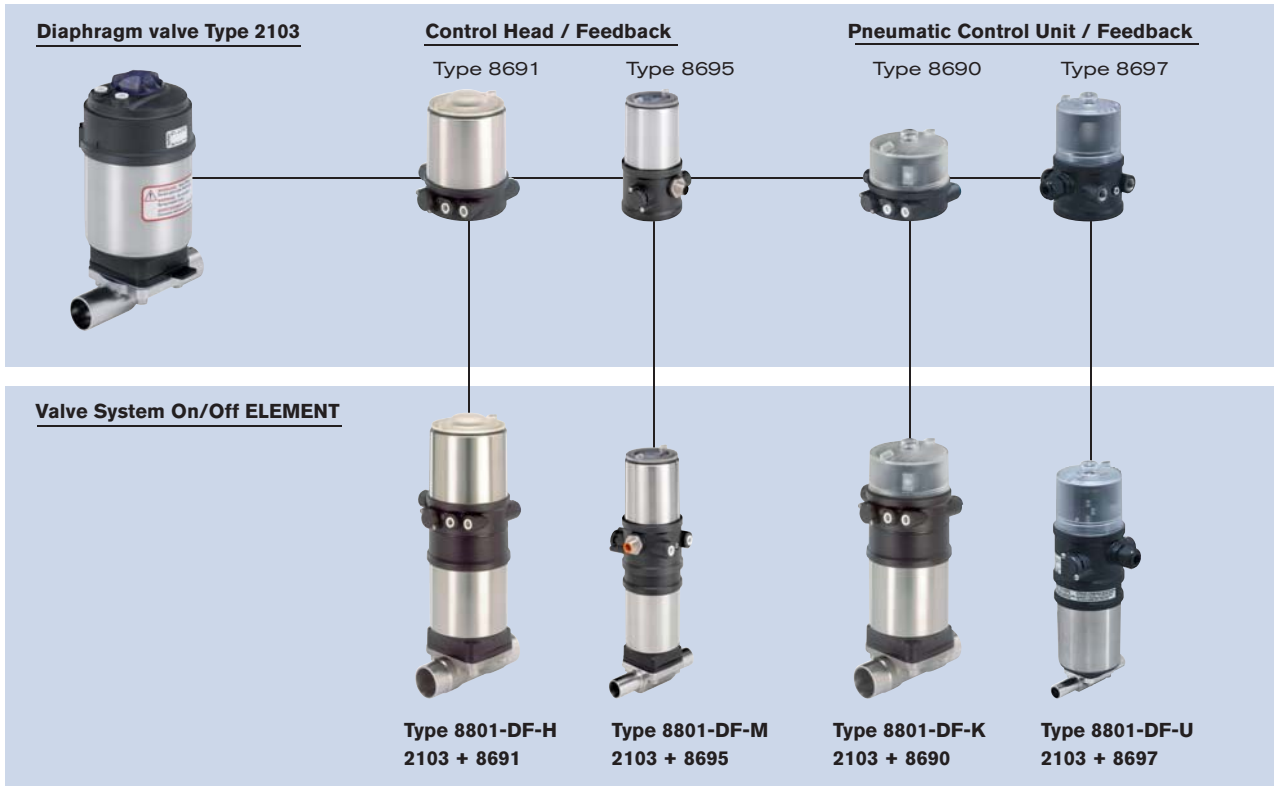


# 2103 Tube Valve Body

## Ordering information for valve system On/Off ELEMENT Type 8801-DF

A **valve system On/Off ELEMENT Type 8801-DF** consists of a **diaphragm valve Type 2103** and a valve actuation system control head **Type 8691/8695** or a pneumatic control unit **Type 8690/8697** (see separate datasheets).

For the configuration of further valve systems please use the "Request for quotation" on p. 8-9. [go to page](#)  
 You order two components and receive a complete assembled and certified valve.



*A detailed description of the control heads and pneumatic control units is on the next page... →*

Ordering information for valve system On/Off ELEMENT Type 8801-DF, *continued*

Control Head / Feedback



More info.



More info.

**Type 8691**

Actuator size 70/90/130

**Type 8695**

Actuator size 50

The Control Head Type 8691/ 8695 is optimised for integrated mounting on the 21XX process valve series. The registration of the valve end position is done through a contactless analog position sensor, which automatically recognises and saves the valve end position through the Teach function when starting up. The integrated pilot valve controls single or double-acting actuators. The status of the valve is shown through high power coloured LEDs.

**Features**

- High power coloured Status-LEDs
- Contactless inductive position sensor
- Pilot valve with manual override
- Teach function for automatic registration of valve positions
- Hygienic stainless steel design
- Easy to clean chemically resistant housing featuring IP65 / IP67, 4X Rating
- AS-Interface or DeviceNet Fieldbus communication

**Benefits**

- Easy and safe Start-up through Teach function
- Easy process monitoring and error detection through clearly visible high-power coloured LEDs
- High plant availability due to prolonged actuator life boosted by spring chamber ventilation
- Minimised space requirement in the plant piping for more flexibility in plant design

Pneumatic Control Unit / Feedback



More info.



More info.

**Type 8690**

Actuator size 70/90/130

**Type 8697**

Actuator size 50

The pneumatic control unit Type 8697/8690 is optimised for integrated mounting on the 21XX process valve series. Mechanical or inductive limit switches register the position of the valve. The integrated pilot valve controls single or double-acting (8690) actuators.

**Features**

- Visual position indicator
- Mechanical or inductive limit switches for end position registering
- Pilot valve with manual override
- Compact design
- Easy to clean chemically resistant housing featuring IP65 / IP67, 4X Rating
- Optional intrinsically safe version acc. to ATEX

**Benefits**

- Easy and safe Start-up through Teach function (Type 8697)
- High level of signal reliability thanks to self adjusting limit switches
- Minimised space requirement in the plant piping for more flexibility in plant design

Click on the orange box "More info"... you will come to our website for the resp. product where you can download the data sheet.

# 2103 Tube Valve Body

## Dimensions [mm] - On/Off ELEMENT Type 2103 and valves system On/Off ELEMENT

**2103 with plastic interface, PPS**

**2103 with 360° rotatable interface, stainless steel**

**2103 with Control Head 8691**

**2103 with Control Head 8695**

**2103 with Pneumatic Control Unit 8690**

**2103 with Pneumatic Control Unit 8697**

Diaphragm size	Actuator size $\varnothing A$ [mm]	$\varnothing A$ [mm]	H [mm]	HS [mm] with		M for stainless steel interface [mm]
				8691/8695	8690/8697	
8	50	64.5	110	222	194	18
15	70	91	136	245	211	16
20	70	91	141	249	216	10
32	90	120	190	298	265	12
40	90	120	195	302	270	14
	130	159	247	355	322	14

## Dimensions [mm] - Tube Valve Body

Port Connection DN [inch]	Port Connection DN [mm]	Diaphragm Size	h [mm]	H [mm]	L [mm]	ØD1 [mm]	s [mm]
1/2"	15	8	9.45	15.8	90	12.7	1.65
3/4"	20	15	13.23	22.76	117	19.05	1.65
1"	25	20	16.4	29.1	127	25.4	1.65
1 1/2"	40	32	22.95	42	159	38.1	1.65
2"	50	40	30.6	56	190	50.8	1.65

## Ordering chart diaphragm Valve Type 2031

### Welded connection ASME BPE/DIN 11866 Series C

electropolished Ra ≤ 0,38 µm and Inspection certificate 3.1 acc. to EN-ISO 10204 (included in delivery)

Control function	Port connection DN [mm] [inch]	Diaphragm size	Actuator size [mm]	Kv value water [m³/h]	Pilot pressure [bar]	Max. operating pressure [bar]	Item no. interface plastic, PPS	Item no. interface 360° rotatable, stainless steel	
A 2/2-way valve, normally closed (NC)  	<b>Diaphragm material EPDM (AB)</b>								
	15	1/2"	8	50	2	5 ... 10	10	290 501	290 513
	20	3/4"	15	70	6,5	5 ... 10	10	290 503	290 515
	25	1"	20	70	12,5	5 ... 10	10	290 505	290 517
	40	1 1/2"	32	90	30	5 ... 10	7	290 507	290 519
	50	2"	40	90	130	5 ... 7	10	290 511	290 524
	<b>Diaphragm material PTFE/EPDM (EA)</b>								
	15	1/2"	8	50	2	5 ... 10	10	290 502	290 514
	20	3/4"	15	70	6,5	5 ... 10	10	290 504	290 516
	25	1"	20	70	12,5	5 ... 10	10	290 506	290 518
	40	1 1/2"	32	90	30	5 ... 10	6,5	290 508	290 520
50	2"	40	90	130	5 ... 7	10	290 512	290 525	
									40

### **i** Further versions on request



**Control function**  
B (normally open: NO)



**Materials**  
Diaphragms for steam sterilization EPDM (AD) and advanced PTFE / EPDM (EU)



**Additional**  
Versions with reduces spring force

# 2103 Tube Valve Body

**bürkert**

**Note**  
You can fill out the fields directly in the PDF file before printing out the form.

## Valve system On/Off ELEMENT Type 8801-DF – request for quotation

▶ Please fill out and send to your nearest Bürkert facility with your inquiry or order\*

Company	Contact person
Customer no.	Department
Address	Tel./Fax
Postcode/town	E-Mail

= mandatory fields to fill out       Quantity       Required delivery date

Operating data	
Pipeline	DN <input type="text"/> PN <input type="text"/>
<input type="checkbox"/> Process medium	<input type="text"/>
<input type="checkbox"/> Type of medium	<input type="checkbox"/> Liquid <input type="checkbox"/> Steam <input type="checkbox"/> Gas standard      unit
<input type="checkbox"/> Flow rate (Q, Q <sub>N</sub> , W) <sup>1)</sup>	<input type="text"/> standard <input type="text"/> unit
<input type="checkbox"/> Temperature at valve inlet	<input type="text"/>
<input type="checkbox"/> Absolute pressure at valve inlet	<input type="text"/>
<input type="checkbox"/> Steam sterilisation	temperature <input type="text"/>

<sup>1)</sup> standard unit: Liquid Q = m<sup>3</sup>/h; Steam W = kg/h; Gas Q<sub>N</sub> = Nm<sup>3</sup>/h

Valves features	
Port connection	DN <input type="text"/>
Type of connection	<input type="checkbox"/> Weld ends
Standard connection	<input type="checkbox"/> ASME BPE/DIN 11866 Series C
Surface finish	<input type="checkbox"/> Electropolished Ra ≤ 0.38 µm
Control function	<input type="checkbox"/> NC <sup>2)</sup> <input type="checkbox"/> NO <sup>2)</sup>
Pilot pressure	<input type="text"/> min. <input type="text"/> max.
<sup>2)</sup> SFA: normally closed by spring action; NO: normally open by spring action	
Actuator size	<input type="checkbox"/> EPDM (AB) <input type="checkbox"/> PTFE/EPDM (EA) <input type="checkbox"/> EPDM (AD) <input type="checkbox"/> PTFE/EPDM (EU) <input type="checkbox"/> FKM (FF)
Please specify item no. (if known):	<input type="text"/>

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Continued on next page →



Valve system On/Off ELEMENT Type 8801-DF – request for quotation, *continued*

**Automation unit features**

Click on the orange box "More info"... you will come to our website for the resp. product where you can download the data sheet.

Control Head / Feedback		Pneumatische Ansteuerung / Rückmelder	
<input type="checkbox"/> <b>Type 8691</b> <b>More info.</b> For actuator size 70/90/130 	<input type="checkbox"/> <b>Type 8695</b> <b>More info.</b> For actuator size 50 	<input type="checkbox"/> <b>Type 8690</b> <b>More info.</b> For actuator size 70/90/130 	<input type="checkbox"/> <b>Type 8697</b> <b>More info.</b> For actuator size 50 
<ul style="list-style-type: none"> <li>Inductive position sensor with automatic Teach function</li> <li>Coloured high power LEDs</li> <li>With/without pilot valve for single or double-acting actuators</li> <li>Fieldbus communication</li> <li>Hygienic stainless steel design</li> </ul>		<ul style="list-style-type: none"> <li>visual status indicator</li> <li>Micro- or proximity switches for end position feedback</li> <li>With/ without pilot valve for single or double-acting actuators</li> <li>Optional intrinsically safe version acc. to ATEX / IECEx</li> </ul>	
<b>Pneumatic function</b> <input type="checkbox"/> Single-acting <input type="checkbox"/> Double-acting <input type="checkbox"/> Without pilot valve	<b>Electrical connection</b> <input type="checkbox"/> Cable gland <input type="checkbox"/> M12 connector	<b>Pneumatic function</b> <input type="checkbox"/> Single-acting <input type="checkbox"/> Double-acting (only with 8690) <input type="checkbox"/> Without pilot valve	<b>Number of Position feedback switches</b> <input type="checkbox"/> 1x <input type="checkbox"/> 2x
<b>Communication</b> <input type="checkbox"/> AS-Interface <input type="checkbox"/> DeviceNet <input type="checkbox"/> without	<b>Approvals</b> <input type="checkbox"/> ATEX cat. 3GD, IECEx <input type="checkbox"/> without	<b>Position feedback switches</b> <input type="checkbox"/> Micro-switch 24V DC <input type="checkbox"/> Micro-switch 50 – 225 V DC/AC (only 8697) <input type="checkbox"/> Inductive switch 3-wire PNP <input type="checkbox"/> Inductive switch 2-wire NAMUR <input type="checkbox"/> Inductive switch 2-wire 24V DC <input type="checkbox"/> without	<b>Electrical connection</b> <input type="checkbox"/> Cable gland <input type="checkbox"/> M12 connector
<b>Approvals</b> <input type="checkbox"/> ATEX cat. 3GD, IECEx <input type="checkbox"/> ATEX cat. 2DG, IECEx <input type="checkbox"/> without			

**Certifications**

- Test report 2.2 according to EN-ISO 10204 (Item no. 803 722)
- Inspection Certificate 3.1 according to EN-ISO 10204 (included)
- Certification of Conformity for surface quality DIN4762-DIN4768-ISO / 4287/1 (Item no. 804 175)
- Certification of Conformity for Pickling and Electropolishing Processes (Item no. 444 900)
- EHEDG - TYPE EL-CLASS I
- Food & beverages (in accordance with EC regulation 1935/2004 / EC)
- Certification according to FDA and USP

**Comment /sketch**

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In case of special application conditions, please consult for advice.

Subject to alteration.  
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